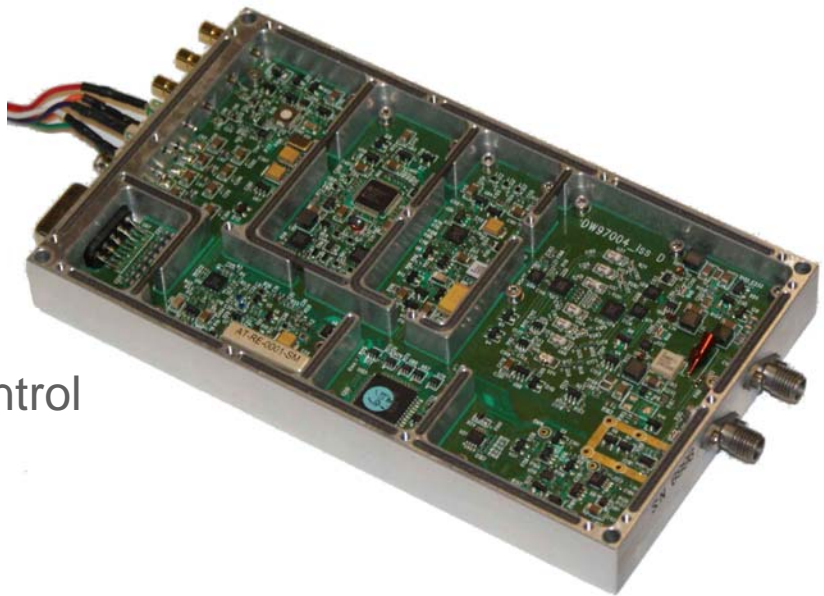


# LA19-15-03 Fast Synthesizer

## 300 kHz to 8 GHz

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### Data Sheet



- 45  $\mu$ s Settling
- 10 Hz Resolution
- 30 dB Amplitude control
- +15 dBm Output
- PLL Lock alarm
- ALC Lock alarm
- -90 dBc/Hz Phase noise at 4 GHz

The LA19-15-03 is a fast, general purpose multi-decade tuning synthesizer module. It provides very fast tuning, typically settling to within 10 ppm in less than 45  $\mu$ s for a full band step. It includes a programmable automatic level control capable of operation over a 30 dB range with a settling time in the region of 10  $\mu$ s. The maximum, levelled output power is +15 dBm across the entire 300 kHz to 8 GHz band.

The synthesizer module provides a 10 MHz reference output as well as being capable of locking to an external reference. The module consumes a total of 8 W so heat management requirements are modest.



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## LA19-15-03 Specification

Parameter	Units	Min	Typ	Max
Frequency range	MHz	0.3	-	8192
Resolution (Freq > 4 GHz)	Hz	20	-	-
Resolution (Freq < 4 GHz)	Hz	10	-	
Maximum output power (either output)	dBm	+15	+17	-
Minimum output power (either output)	dBm	-	-20	-15
Frequency settling time (within 10ppm)	µs	-	40	45
Phase noise at 10 kHz offset				
2 GHz	dBc/Hz	-	-96	-94
4 GHz	dBc/Hz		-90	-88
8 GHz	dBc/Hz		-85	-83
Harmonics <sup>1</sup>	dBc	-	-26	-20
Sub-harmonics <sup>1</sup>	dBc	-	-46	-40
Spurious <sup>1</sup>	dBc	-	-60	-50
Internal reference stability	ppm	-	-	2.5
Internal reference accuracy <sup>2</sup>	ppm	-	-	1.5
Internal 10 MHz reference output	dBm	-3	0	+3
External 10 MHz reference input	dBm	-6	0	+6
External reference lock range	ppm	-8	-	+8
Internal 429 MHz reference output	dBm	-3	0	+3
Power supply requirements				
+19 V	mA	-	3	5
+9 V	mA	-	650	700
+5 V	mA	-	410	450
-5 V	mA	-	45	50
Operating case temperature range	°C	-10		+50
Programming interface <sup>3</sup>		9 way D-sub, 3V logic		

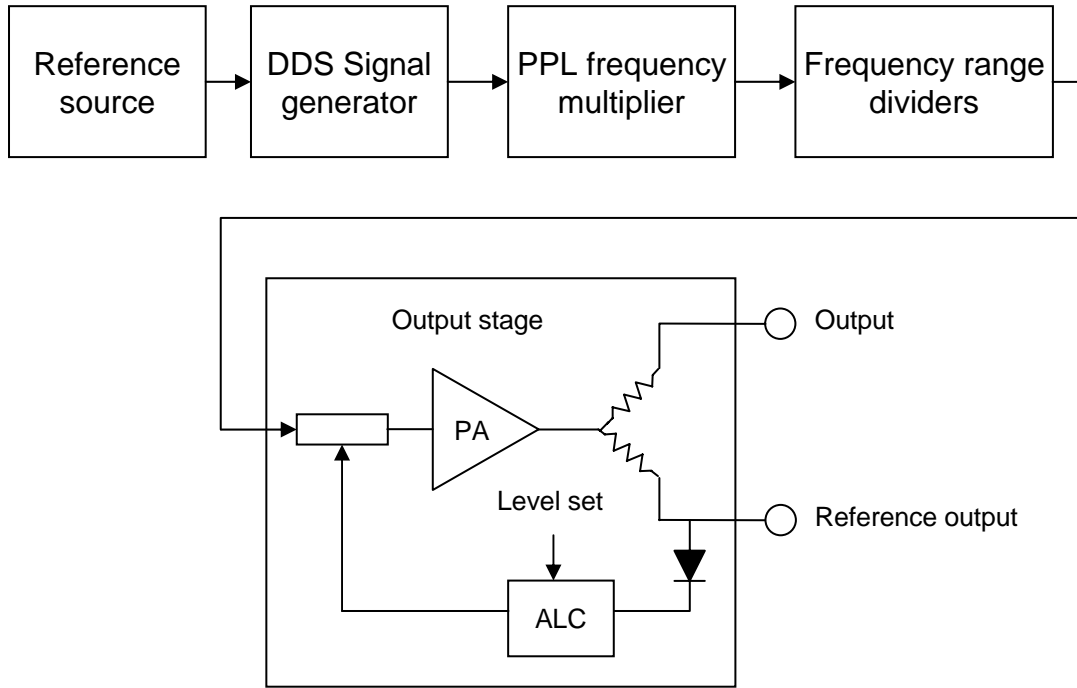
**Notes:**

1. Output set to +10 dBm
2. Case temperature at 25°C
3. Refer to programming document for details

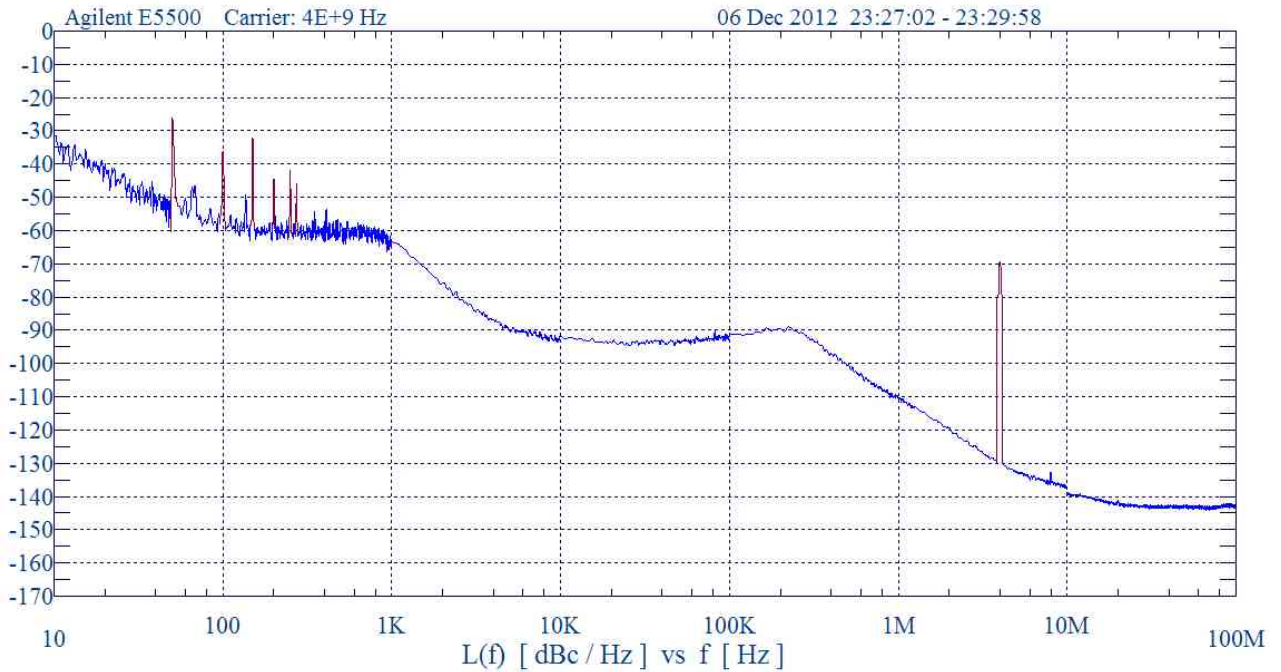


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**Simplified block diagram of the LA19-15-03 synthesizer**



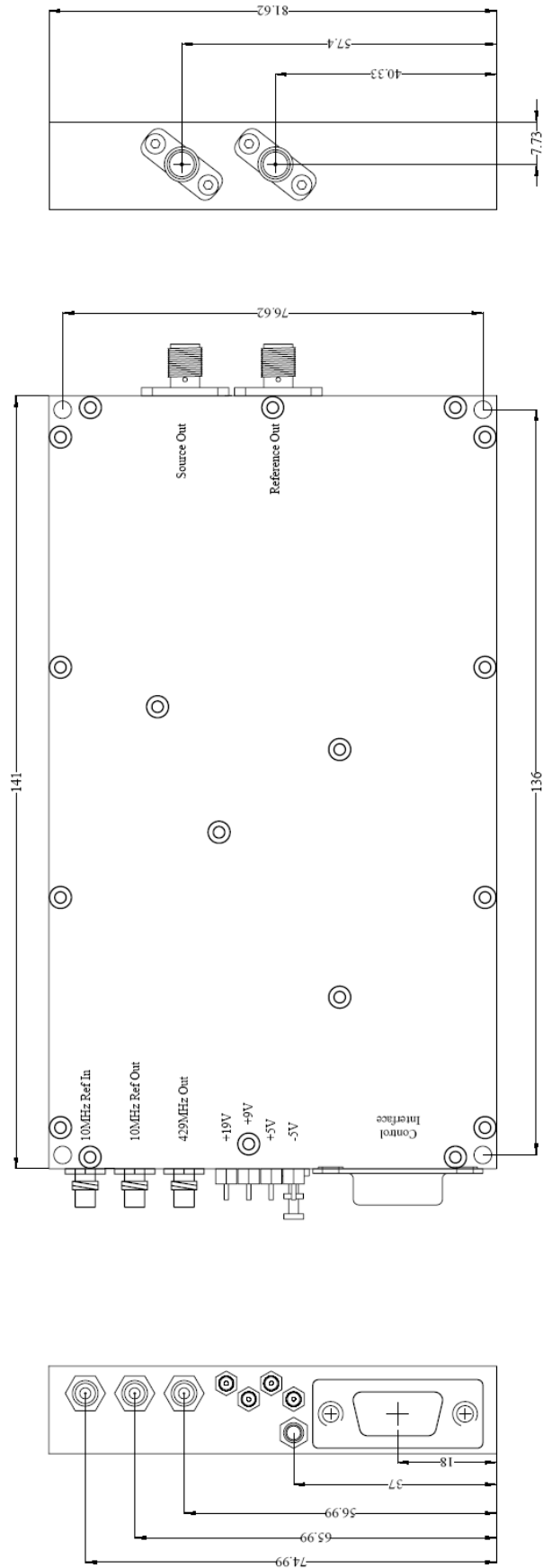
**Measured phase noise at 4 GHz**



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**LA19-15-03 synthesizer mechanical details**